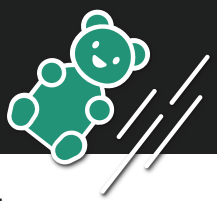
PHASE TWO: BUILD UP
SLIPPERY SOLIDS



Mission: How do layers help things slide?

Age: 5+
Materials: $6

Time: 25 min
(Set-up: 10 min | Activity: 15 min | Clean-up: 5 min)

What you need:

Materials:
- 1-2 sheets of plain paper, cut into bits (~1.5-inch squares)
- Chunky glitter (also called "jumbo glitter")
- Pencil
- 1-2 sheets of uncut paper
- Gummy bears (fresh and a little sticky)

Equipment:
- Scissors
- Tape
- 3-inch binder (or build your own similar-sized ramp, 3 inches tall)
- Large baking tray with edges
- Data sheet

What to do:

1. Rub your thumb and index finger together. How does it feel to rub your skin together? How easily do the surfaces of your fingers slide against each other?

2. Now try it again to test a few different materials. Notice how the materials feel between your fingers as they slide.
   - Hold some paper bits between your fingers.
   - Hold some pieces of chunky glitter between your fingers.
   - Color a piece of paper with a pencil, then press both fingers in the colored area to cover your fingers with graphite.

3. Each test uses materials that are made up of flat, small particles – even the graphite from the pencil, where the particles are too small to see. You'll measure the slipperiness of these materials by testing how well they help a gummy bear slide down a ramp.

4. Get your ramp ready, using a binder or your own design. Tape a sheet of paper to the top of the ramp. Place your ramp on the baking tray.

5. Put one gummy bear at the top of the ramp. Does it slide down? Try it with two other gummy bears and record your results on the data sheet.

6. Draw two lines from the top to the bottom of the ramp to divide your surface into three equal lanes. Sprinkle paper bits all over the first lane, chunky glitter (about 2 teaspoons) all over the second lane, and color the third lane with pencil (the darker the better).

7. Based on your observations in step 2, record your predictions on the data sheet. Do you think each material will help the gummy bear slide?

8. "Coat" the back of each gummy bear by pressing or rubbing it into the material covering each lane, then place the bear at the top of the ramp. Does it slide? Test each lane 3 times and record your results on the data sheet. Did your results match your predictions? Which slid fastest?

9. Explore further! Look for other materials that might help the bear slide. Test and record your results on the additional rows of the data sheet.

Clean-up:

Wash your hands with soap to remove graphite from your fingers. Take apart your ramp and throw away used paper, glitter, and gummy bears.

DATA SHEET

SLIPPERY SOLIDS

For each material, predict whether it will help the gummy bear slide down the paper surface of the ramp. During your experiment, observe and record your observations for each trial.

MATERIAL	PREDICTION: Will it slide? (yes/no)	RESULTS: Did it slide? (yes/no)			NOTES
		TRIAL 1	TRIAL 2	TRIAL 3	
No material					
Paper bits					
Chunky glitter					
Pencil (graphite)					